

In the Claims

Please substitute the claims as set forth below in a complete listing, canceling the noted claims without prejudice. Language added is shown underlined and language deleted is shown in strike through or within single brackets. The amendments include no new matter and are fully supported in the application as filed.

1.(currently amended) A ~~plastid transformation~~ vector for ~~a stably~~ transforming a plastid genome, said vector comprising[,] as operably-linked components[,] a first flanking sequence, a DNA sequence coding for an insulin-like growth factor-1 (IGF-1) [or,] which is capable of expression in said plastid genome, and a second flanking sequence.

2.(currently amended) The vector of claim 1, wherein the DNA sequence coding for the IGF-1 is a synthetic IGF-1 (IGF-1s) and ~~consists of about~~ contains approximately 60% adenine and thymine nucleotides.

3.(currently amended) The vector of claim 1 ~~further comprising a regulatory sequence wherein said plastid is a chloroplast.~~

4.(currently amended) The vector of claim [3] 1, ~~wherein said~~ further comprising a regulatory sequence ~~comprises~~ containing a promoter operative in said plastid genome.

5.(currently amended) The vector of claim 4, ~~wherein said promoter is 16 sRNA~~ 1, wherein said DNA sequence is according to SEQ ID NO:2.

6.(currently amended) The vector of claim [3] 4, wherein said regulatory sequence comprises psbA 5' and psbA 3' elements.

7.(currently amended) The vector of claim [3] 4, wherein said regulatory sequences further comprise a 5' UTR capable of providing transcription and translation enhancement of said DNA sequence coding for IGF-1.

8.(currently amended) The vector of claim [3] 4, wherein said regulatory sequences further comprise a 3' untranslated region (UTR) capable of conferring transcript stability to said IGF-1.

9.(original) The vector of claim 1, wherein said first flanking sequence is trnI, and wherein said second flanking sequence is trnA.

10.(currently amended) The vector of claim 1, ~~wherein the vector is component for stably integrating into a plastid genome of a plant, and~~ wherein said first and second flanking DNA sequences are substantially homologous to sequences in a spacer region of said plastid genome, and wherein said first and second flanking sequences are conserved in the plastid genome ~~of said higher plant species.~~

11.(original) The vector of claim 10, wherein said spacer region is a transcriptionally active spacer region.

12.(original) The vector of claim 10, wherein said trnI and trnA provide for homologous recombination to insert an IGF-1 or region of an inverted repeat region of a chloroplast genome.

13.(currently amended) The vector of claim 1, wherein said DNA sequence coding for IGF-1 ~~or a substantially homologous DNA sequence of IGF-1~~ is located in a single copy region of said plastid genome.

14.(original) The vector of claim 7, wherein said 5' UTR is a 5' UTR of psbA.

15.(original) The vector of claim 8, wherein said 3' UTR is a 3' UTR of psbA.

16.(original) The vector of claim 1, further comprising a DNA sequence encoding a selectable marker.

17.(original) The vector of claim 16, wherein said selectable marker is an antibiotic-free selectable marker.

18.(original) The vector of claim 17, wherein said antibiotic-free selectable marker is Betaine aldehyde dehydrogenase (BADH).

19.(currently amended) The vector of claim 16, wherein said DNA sequence encoding is a selectable marker encodes an antibiotic resistance selectable marker.

20.(original) The vector of claim 19, wherein said antibiotic resistance selectable marker is aadA.

21.(currently amended) A method for producing IGF-1 comprising[:] integrating the plastid transformation vector of claim 1 into the plastid genome of a plant cell[:] and

growing said plant cell to thereby express ~~said IFN~~ the IGF-1 product encoded by said vector.

22.(original) The method of claim 21, wherein said IGF-1 is competent to produce an immunogenic response in a mammal.

23.(currently amended) The method of claim 22, wherein said ~~immunogenic response~~ IGF-1 is substantially free of negative side effects ~~associated with injected IGF-1 in the~~ mammal.

24-27.(canceled)

28.(currently amended) A plant ~~stably transformed with~~ containing the transformation vector of claim 1.

29.(original) A progeny of the plant of claim 28.

30.(original) A seed of the plant of claim 28.

31.(canceled)

32.(currently amended) The plant of claim 28, wherein said plant is an edible plant suitable for ~~mammal~~ consumption by a mammal.

33.(original) The plant of claim 28, wherein said plant further comprises at least one chloroplast transformed with the vector of claim 1.

In re Patent Application of
Daniell
Serial No.: 10/519,820
Filed: 12/30/2004

34.(currently amended) The plant of claim 28, wherein said plant further comprises ~~mature~~ one or more leaves containing plastid genomes transformed with the vector of claim 1.

35-38.(canceled)